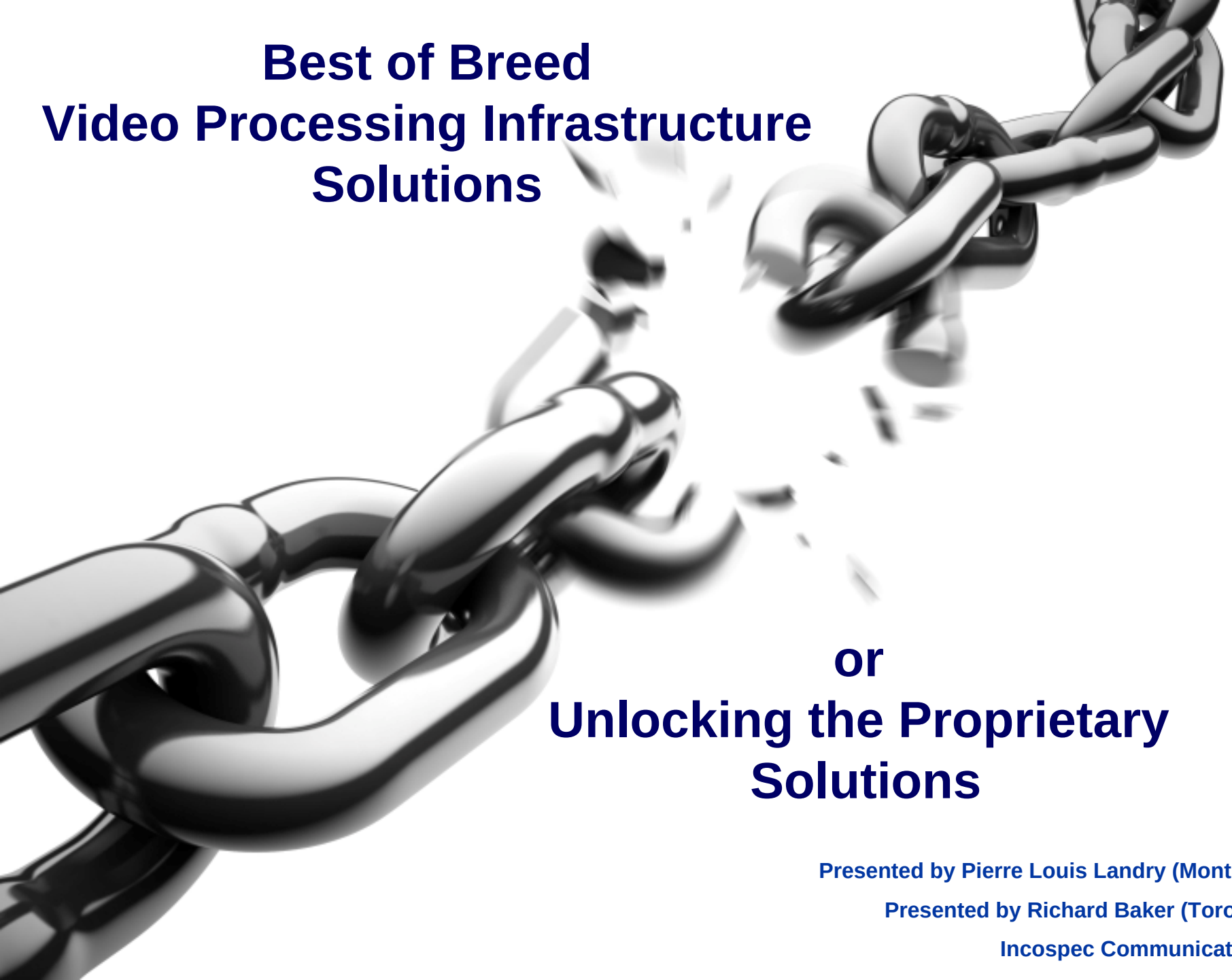
Best of Breed Video Processing Infrastructure Solutions



or Unlocking the Proprietary Solutions

Presented by Pierre Louis Landry (Montreal)

Presented by Richard Baker (Toronto)

Incospec Communications

Today's Storyboard

- Industry modular trends and standards
- Unlocking the Proprietary Infrastructure Solutions
  - Win-win solutions
    - Manufacturer's benefits
    - Owner's benefits
    - Installer's benefits
      - Frame installation
    - End-User benefits
      - 1) Standard control (Card Edge)
      - 2) Advanced Software Control
      - 3) Room Open for Competitive features
- Choices and Award winning products
- Special purpose cards
- Sneak Preview NAB 2010

Industry Modular Standards

Desktop Computing

PCI
PCIe
AGP

Telecommunications

ATCA
uTCA

Industrial, Mil/Aero

VME
CompactPCI
uTCA

Industry Modular Standards

Desktop Computing
- PCI
- PCIe
- AGP

Telecommunications
- ATCA
- uTCA

Industrial, Mil/Aero
- VME
- CompactPCI
- uTCA

Example Desktop PC industry:

(open-architecture)

-Common

- -Frame
- -AC power supply
- -Rear connectors / display outputs
- -Widely accepted OS
- -Communications ports
- -Expansion bus (slots)

Added benefits
Computer industry strengths

- Common goal solutions
  - Downloadable updates
  - Network connecting
  - Remote access
  - Standard Hardware sniffing SNMP
  - Multi-users (log in, profiles)
  - User Access Control (Security)

Additional Major Benefits:

-More users
-Shorter learning curves

The closed proprietary approach to broadcasting:

- One hardware/One control:
  - Customers locked into one manufacturer's frame standard and modules for their terminal equipment solutions.

Miranda

iControl

HARRIS LEITCH

NEO

everlz

VistaLink

Solution

openGear

ROSS + WBS WARD-BECK SYSTEMS + COBALT

Unlocking the Proprietary Infrastructure Solutions

- **One common frame**
  - Power supply
  - Cooling system
    - ventilation, fans, filters, control system
  - Reference inputs
  - Operating system
  - Rear connector structure
  - Card structure
    - size, mid plane, interconnect
  - Communications protocol

DFR-8310 frame
Up to 10 cards

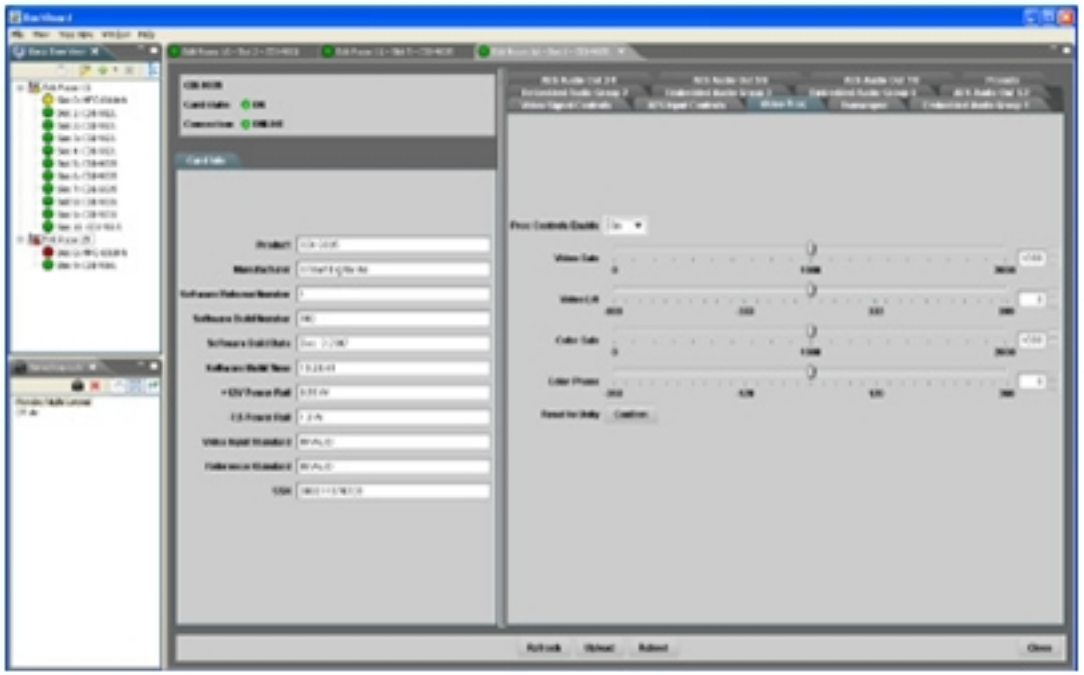
DFR-8321 frame
Up to 20 cards

NEW!

openGear

Unlocking the Proprietary Infrastructure Solutions

- **One common software control language**
  - Full control and monitoring capabilities are available with **free** DashBoard™ software



openGear

Unlocking the Proprietary Infrastructure Solutions

openGear

Customers are no longer locked into:

-one manufacturer's frame standard and

-modules for their terminal equipment solutions.

Multi-vendor support

-24 partners

www.

Modular Interfaces
Signal Processing:

- 3Gbps Distribution
- 3G Conversion and Processing
- Audio Processing & Conversion
- Channel Branding & Keying
- Demodulation and Decoding
- Distribution and Monitoring
- Fiber Optic Interfaces
- Keyers & Mixers
- HD/SD Embedders and De-Embedders
- Loudness Control
- HD Conversion and Processing
- Monitoring and Signal Measurement Over IP
- Routing and Change-Over
- SD Conversion and Processing
- Solid State Media Server
- Switching
- Sync Pulse Generators
- Synchronization & Delay
- Video Conversion

-Over 300 solutions

Modular Interfaces

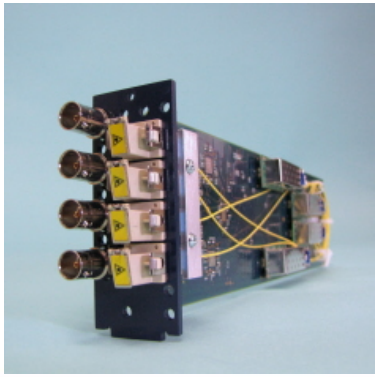
Stand alone specialty products:

- **Opening the boxed products**
  - Color correction
  - Logo Inserters
  - Receiver Decoders
  - Video Networking

MultiDyne®
Video & Fiber Optic Systems

Multidyne's HD-3500 3G HD-SDI fiber optic transport system at IBC

-provides 1.5G or 3Gb/s fiber optic transport with audio, intercom and bi-directional data over a single fiber, with multi-rate high definition transport up to 1080p 3G HD-SDI.



Breaking the Chains with Win-Win solutions

Win-Win solution

Manufacturer's Benefits

- Helps engineers bring products to market
  - They deal with the technology in their product
    - Not wasting time on a frame, power, connectors, control, software & GUI.
    - Less hassles for CSA/UL approval, the power supply is already approved
    - Reduced time to market

- Each product has dedicated engineers for:
  - Modifications for niche applications
  - Updates
  - Listening to customer requests

- Allow feature-based competition
    - Not prisoner to your chosen frame manufacturer who won you on price

- Opens possibilities of shared technology amount partners

Win-Win solution

Owner's Benefits (1)

- Choices w/ best in class products!
  - Best of breed solutions
  - and not best effort or
  - Me-Too offerings (and when)

- Competition within the same frame….means fair prices!

- Competition within the same frame….means better solutions

Win-Win solution

Owners Benefits (2)

- No longer single sourced for solutions
  - A selection of similar products from technology leading manufacturers
- Reduced install & commissioning
  - One Control System
  - Common I/Os, Built in memory, shared OS
- Now you can rely on a Plan B
  - Customers have alternatives:
    - Out of stock supplies
    - Manufacturers Production line schedules
    - Smoke & Mirrors (NAB Vaporware)
      - Planned release 20?? Debugged when?

Long term frustration leads to reason

- **BBC outlines long-term technology strategy**
  - "The BBC must strive for further standardisation in the technology solutions it employs to minimise the overall costs and maximise re-use.
  - The use of commercial off the shelf (COTS) technologies and solutions should be the preferred option.

Does it work today?

Win-Win solution

Owners Benefits (3)

Multi-vendor choices

RossVideo	A/V distribution, conversion & processing & fiber
Cobalt	A/V distribution, conversion & processing
B&M	A/V conversion & processing
Decimator	A/V conversion & processing
BlackMagic	A/V conversion & processing
Link	A/V conversion & processing
WardBeck	Audio distribution & processing
Sonifex	Audio processing
Wohler	Audio monitoring
Algolith	Video processing
CalMedia	Video processing
Magenta	Video over IP

openGear developers
Dextera Labs
Cardinal Peaks
BrioConcept

Claratech	Fiber
Telecast	Fiber
Multidyne	Fiber
Norpak	Data insertion
SerriaVideo	Routing
ESE	Timing & Clocks
Sencore	ASI decoding
Chromatec	MultiViewers & fiber

One stop: Multiple Solutions

- **Make it easy for the end user to peruse all products**
  - Provide an impartial venue for all partners to showcase their products
- www.opengear.tv

or direct access

www.incospec.com

Win-Win solution

Owners Benefits (3)

- 5-year transferable warranty
  - backed by Ross Video's experience in engineering and design expertise since 1974.
  - Based on product quality, reliability and functionality

Note: Besides Ross Video, other of the Multi-Vendor partners also support the 5 Year warranty including Cobalt, Ward-Beck, Sierra Video, etc…

Win-Win solution

Installer's Benefits

Frame Overview **DFR-8321**

OpenGear Frame History

DFR-8321

IBC2009

The best solution for standard and high definition terminal equipment

Can house any mix of analog, digital, video and audio cards in the same 2 RU frame

Aluminum construction reduces overall weight

DFR-8310

NAB2006
THE WORLD'S LARGEST ELECTRONIC MEDIA SHOW

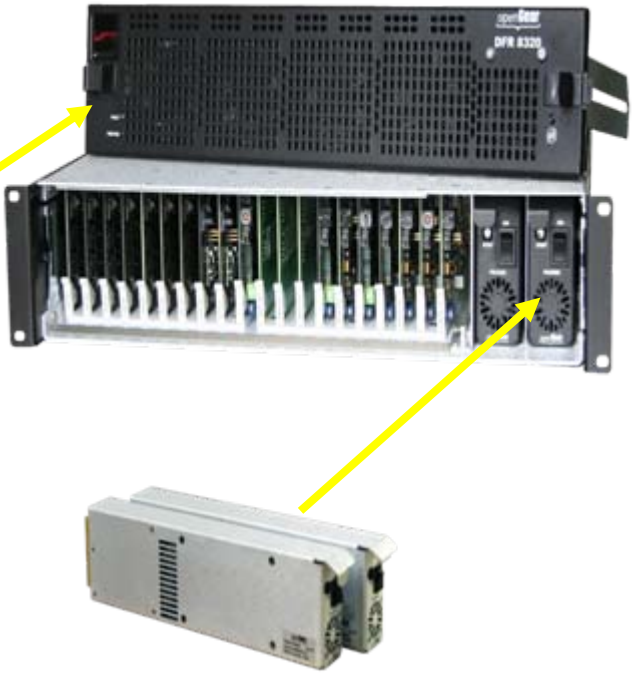
TV TECHNOLOGY STAR 2006

NAB 2006 AWARD FOR INNOVATION IN MEDIA WINNING PRODUCT

DFR-8321

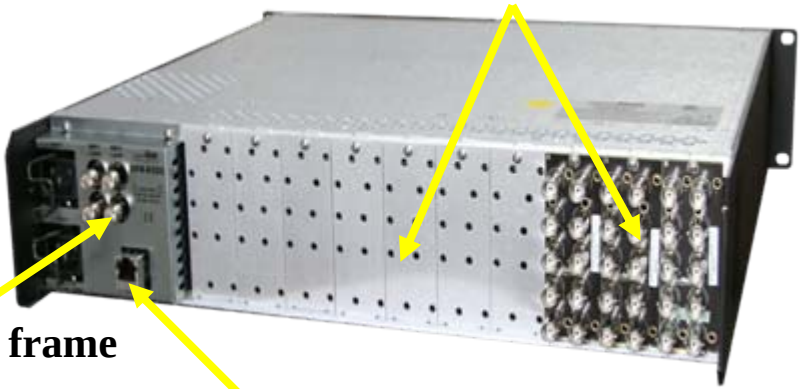
DFR-8321 Frame

- 2RU
- 20 card slot capacity
- Hot swappable fans
- Hot swappable PSU



Hot swappable fans

Ventilation through Rear I/O Front/Back cooling



Dual looping frame wide references

10/100 Mbit Ethernet

One PSU can power an entire frame
Redundant design allows <u>two supplies to share the load.</u>

Power

The frame highlights

Robust 150W Power Supply with **integral cooling fan**

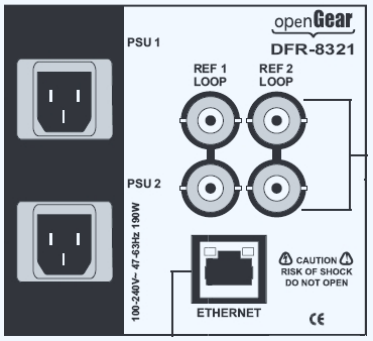
Hot-swappable redundant optional redundant power supply for 24/7 operation

Front Frame Access

-replaceable PS,

-without requiring rear-frame access

-On/Off Switch



Separate power cords to each supply for power feed redundancy

PowerLock cord retainer mechanism guards against accidental power loss

Cooling system
The frame highlights

PS have their own fans

STD on 8321 Cooling Fan Module for increased ventilation and enhanced reliability

An **intelligent fan controller** adjusts fan speed with changes in frame power loading.

Particular attention has been paid to **frame acoustics** in order to keep fan noise to a minimum.

Fan Fail and Error Indicator LEDs on front of the frame (available with optional Cooling Fan Module)

Rear Modules for the DFR-8321 Series Frames - Full Rear Module

- The Full Rear Modules features
  - a single card connector and
  - can include up to 10 BNCs, or a combination of BNC, AES, and fiber optic connectors.

- Each module occupies
  - two slots in the frame and
  - the openGear card must be installed in an even slot number, such as slot 2 or 4.
  - Up to 10 cards can be installed using this rear module type. (**Figure 4.1**)

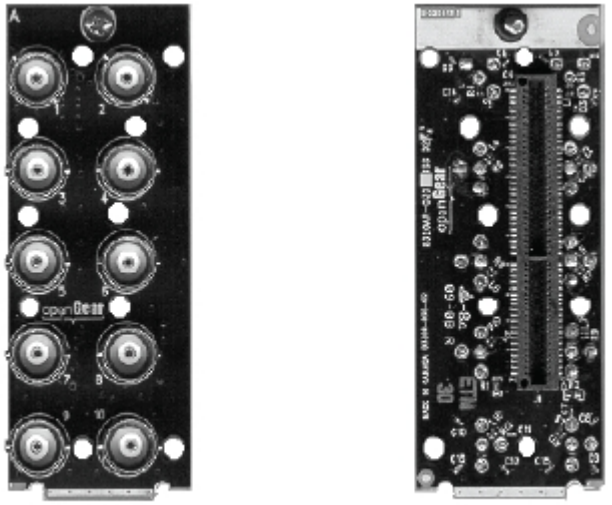


Figure 4.1 *Full Rear Module — Ten BNC Connectors*

Rear Modules for the DFR-8321 Series Frames - Split Rear Module

- **Split Rear Module**
  - This module features two card connectors and can include up to 10 BNCs, or a combination of BNC, AES, and fiber optic connectors. Each card connector is routed to a column of five BNCs.
  - This module can only be used in a DFR-8321 series frame. A Split Rear Module occupies two slots in the frame but provides connectors for two openGear cards. Up to 20 cards can be installed in the frame using this type of rear module. (**Figure 4.2**)

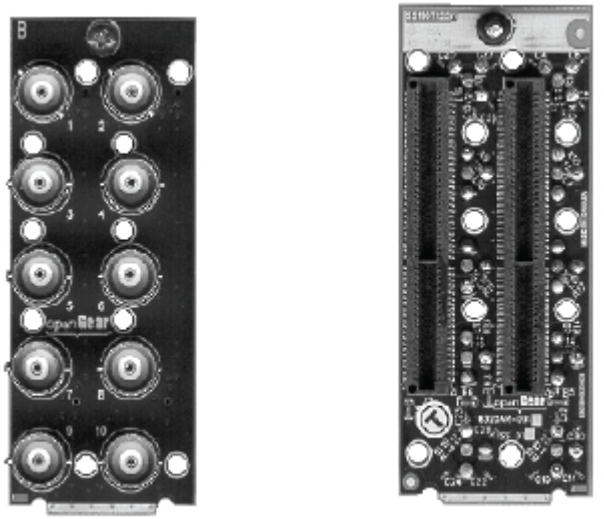
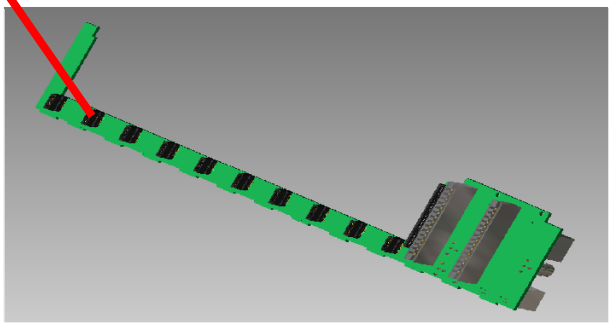
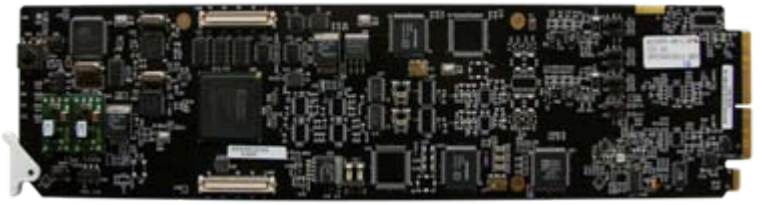


Figure 4.2 *Split Rear Module — Ten BNC Connectors*

Card format





Top Fingers connect directly to Rear Module

- **Can be optimized for signal quality and signal type**
- **BNC, audio, fiber, etc**
- **3Gb/s**

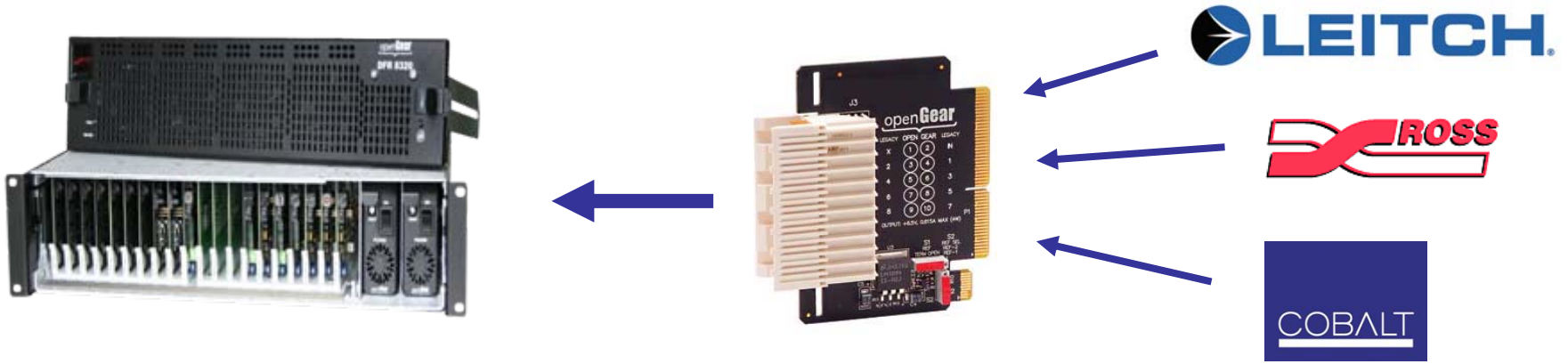
Bottom Fingers connect to midplane for:

- **Power**
- **Communications/Control**
- **Common signals such as frame reference**

Legacy cards:
In an openGear frame?

- **An adapter for legacy cards in an openGear frame:**
  - Cobalt Digital 5000 series cards in an openGear™ frame.
  - Ross 8000 series
  - Leitch 6800 series
    - can be adapted to the openGear™ frame with the openGear™ adapter cards.
      - The oGA-1 linear adapter supports loads up to four watts per card
      - while the oGA-2 high efficiency adapter supports loads up to 10 watts per card.

*** No Dashboard Control**



End-User’s Benefits

(1) Standard Control

Card Edge

First feature I fell in love with:

- **Card Mounted Finger Joystick/switch**
  - "Heads up" feature
    - Available on various cards
    - such as the cross-converter **SFS-8221**

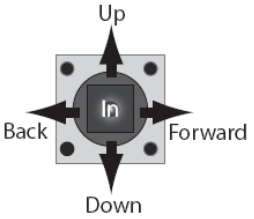


*Figure 4.1 Menu Switch (**SW3**)*

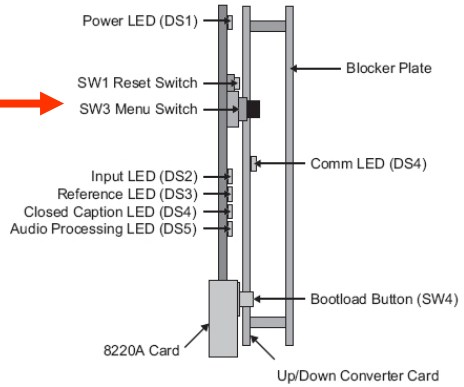


Figure 3.2 UDC-8225A Card-edge Controls

Permits card level adjustments with on screen display of menu.

Head’s Up Display

- **Head’s Up Display**
  - To make configuration easier, the UDC-8225A Format Converter offers a unique Heads-Up Display on a separate NTSC / PAL monitoring output.
  - When activated, card status and parameters can be viewed and adjusted using the card-mounted finger joystick and an easy to use menu system.

• *To make configuration easier, the UDC-8225 Cross-Converter offers a unique Heads-Up Display on a separate NTSC/PAL monitoring output. When activated, card status and parameters can be viewed and adjusted using the card-mounted finger joystick and an easy to use menu system.*

I’m not the only one who finds this feature cool… -Card Mounted Finger Joystick

- We particularly like the Cobalt feature that provides control of the cards via onboard switch settings or through Cobalt’s DashBoard software.
  - We use DashBoard to control all parameters of the various Cobalt products we use in our larger systems.
    - The DashBoard software is easy to operate as it’s very intuitive.
  - Since many of the parameter adjustments are also available on edge-mounted controls, we also use cards in local mode for some of our smaller systems.

TV TECHNOLOGY

THE DIGITAL TELEVISION AUTHORITY

Clark Media Sold on Cobalt Reliability

by Gary Snyder
President/Engineer
Clark Media

NEEDED SOLID CARDS

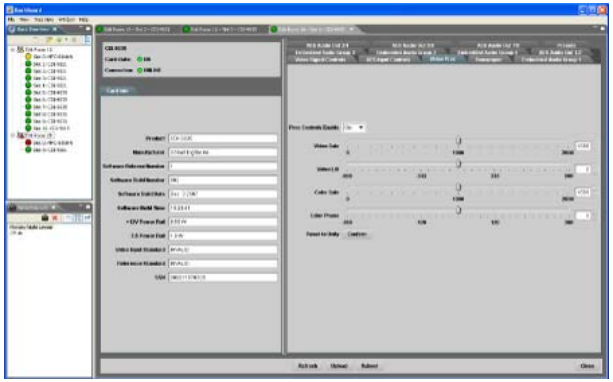
Gary Snyder

Gary Snyder is the president/engineer at Clark Media.

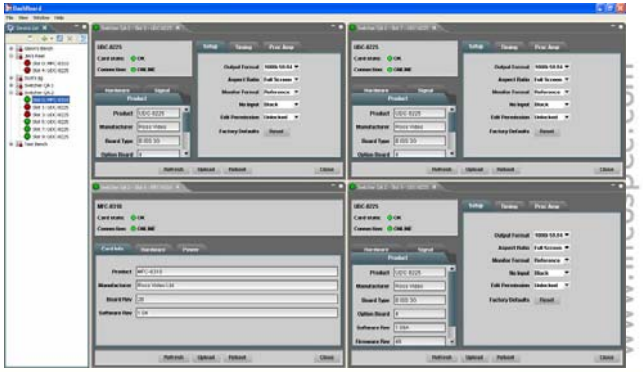
End-User's Benefits

(2) Advanced Control

Common Software



DashBoard



First: Install Optional Ethernet base Frame Controller

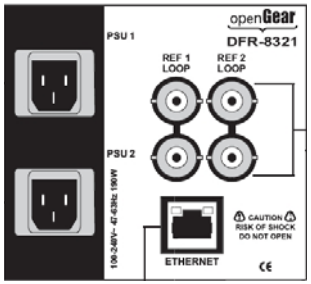
MFC-8320-N

Optional Ethernet based Frame Controller

-For remote setup, monitoring, and control
-IP address stored on the frame
-Slot naming direct to the frame

Also provides;

-Fan control
-Power monitoring
-Ethernet connectivity

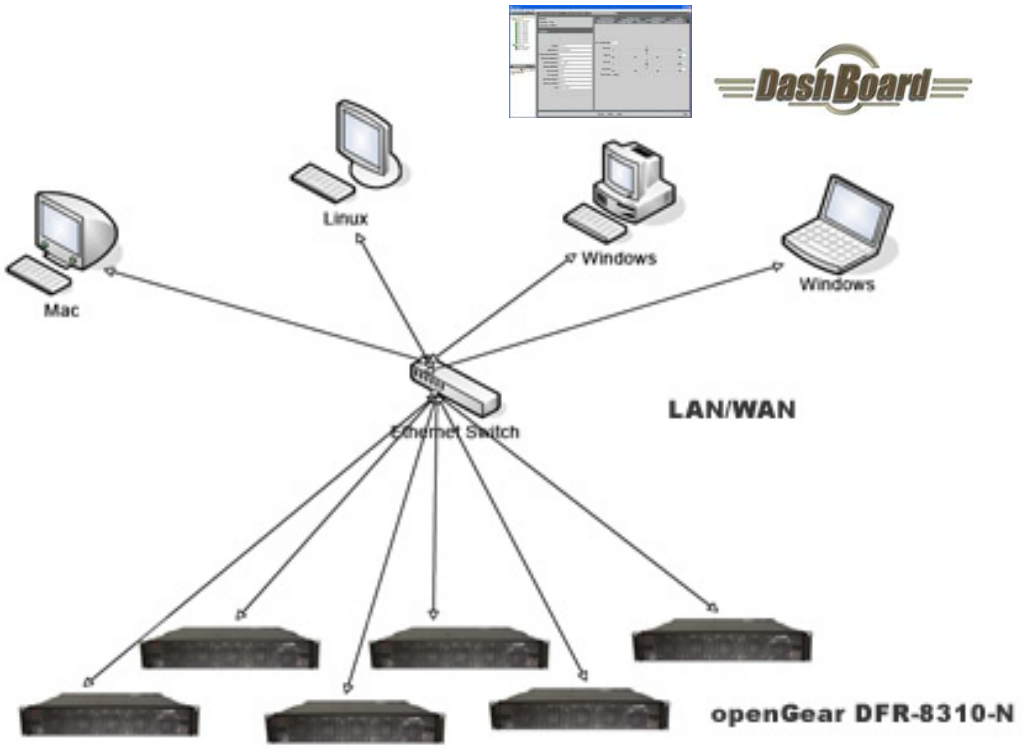


Future proofed
10/100 Mbit Ethernet control

New IBC 2009

The MFC-8320-N brings Ethernet connectivity to the frame infrastructure.

- **Network interface card (NIC)**
  - Multiple frames can be connected to multiple control and monitoring stations
  - Automatic discovery of cards
  - Auto discovery of frames on the same subnet
  - Software & firmware upgrades via Ethernet/DashBoard
  - DHCP (Dynamic Host Configuration Protocol) configuration available



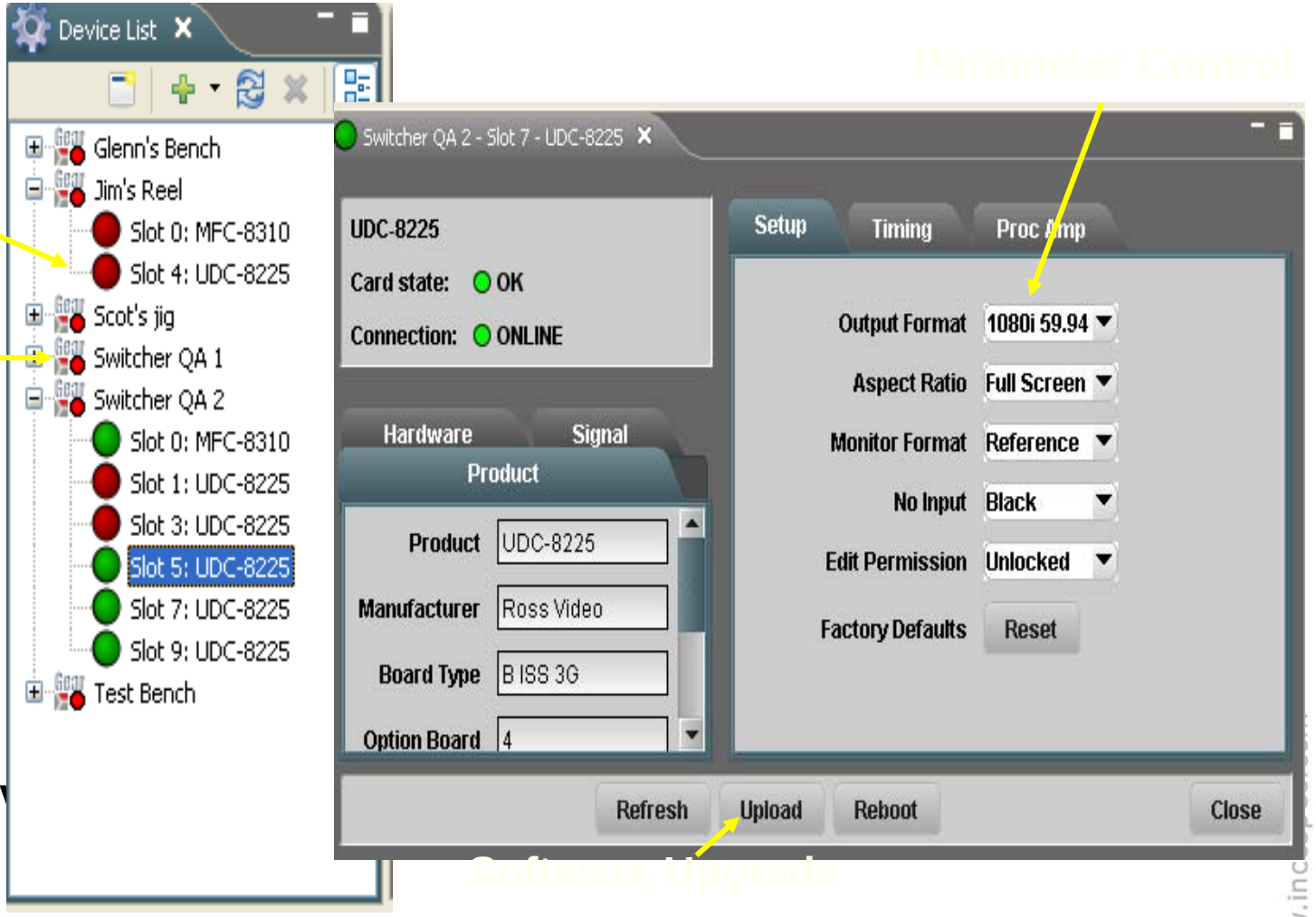
No Application Server required

DashBoard

Device Alarms

Frame Alarms

Sav



Parameter Control

Software Upgrade

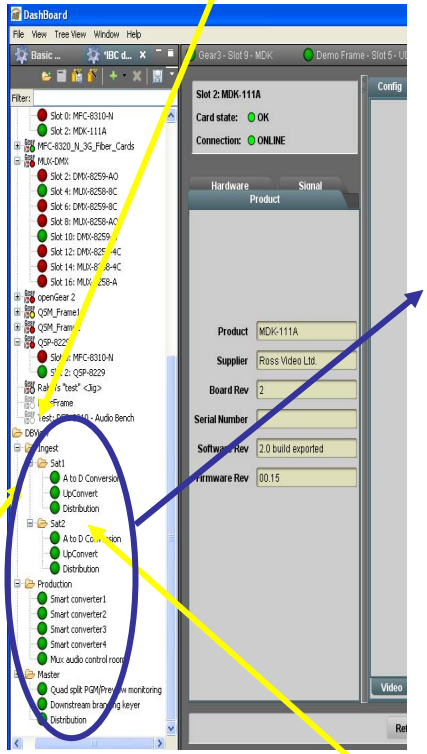
DB-View Plug-in (Advanced Tree Option)

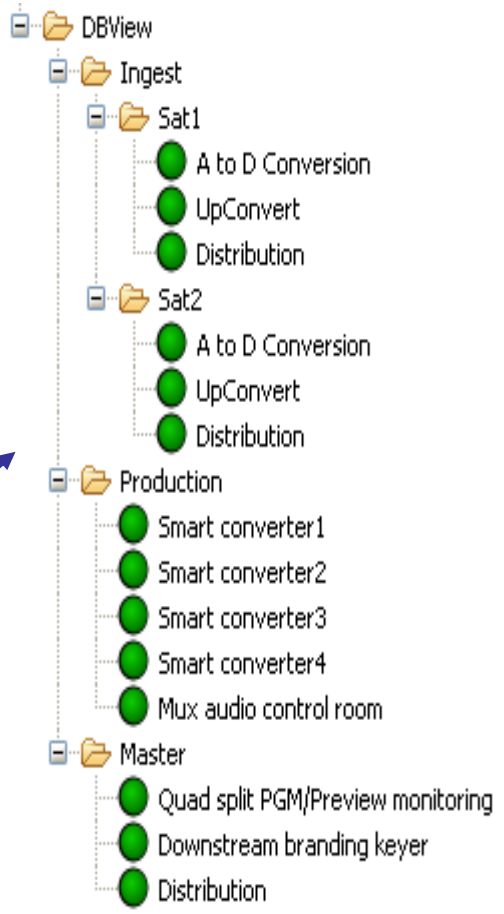
For compiling user folders

Absolute necessary in larger installations

Plug ins allow end users to customize control and monitoring

Custom/Syste Views





System Level Alarming

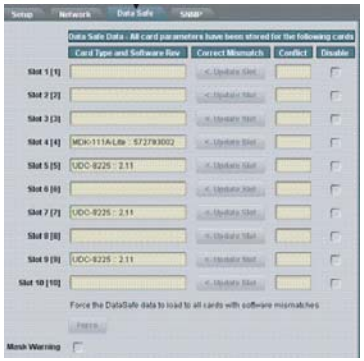
Custom device labeling

Additional functionality

DataSafe (new feature)

New

IBC2009



-All card parameters in the frame are stored on the network card

-DataSafe enables you to load and store card parameters to from a single file, copy parameters from one card to a another card or even a group of cards via DashBoard.

-This allows you to update a subset of devices instead of the entire connected view.

-Replace a card and it automatically re-configures from the network card

SNMP-8310 Software option for MFC-8310-N:

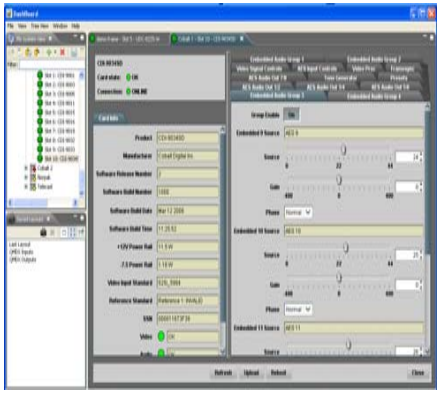
-Provides SNMP (v1 and v2) control and monitoring

v1 & v2c SNMP

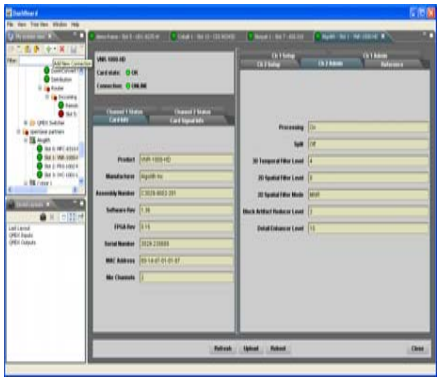
The power of DashBoard:

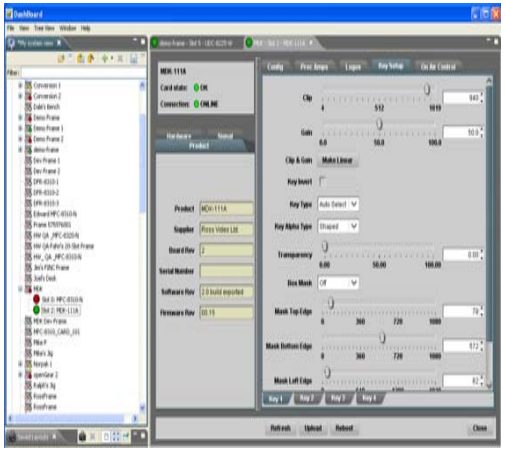
Multiple vendors same look and feel

COBALT

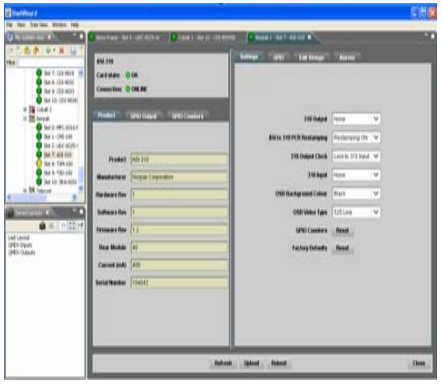


Algolith

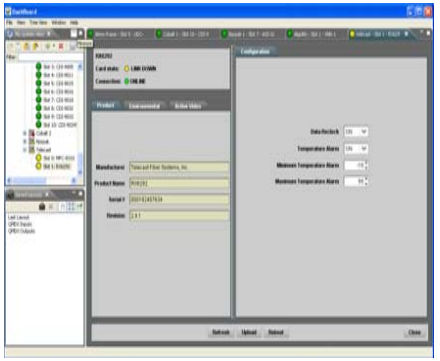




norpak



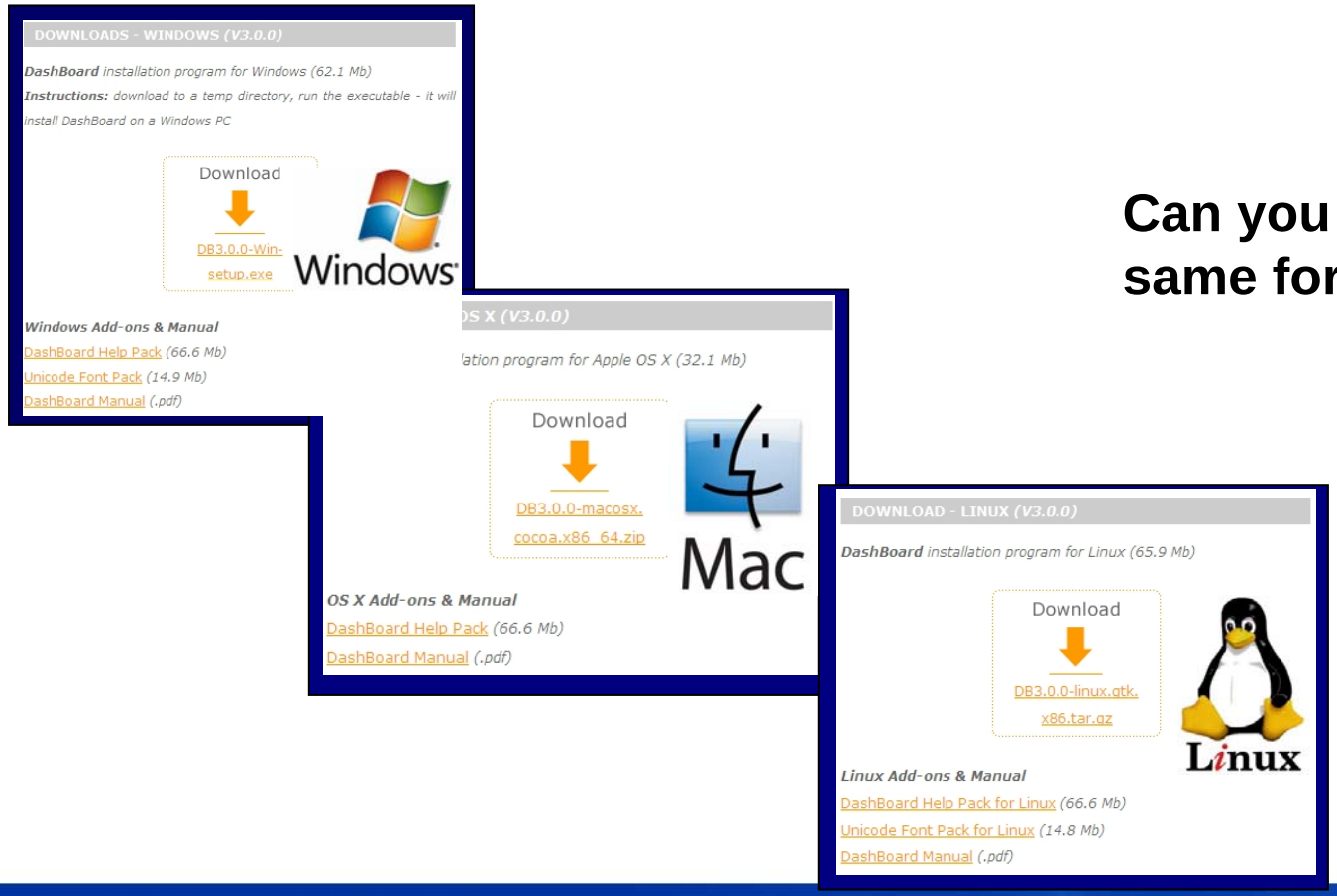
Telecast Fiber Systems, Inc.



DashBoard

Best of all: Your preference

- **You choose which OS you want to use**
  - **(its Java based and FREE);**



Can you say the same for the others?

End-User's Benefits

Room Open for Competitive Features

(3) Specialty remote panels for function specific needs

Cobalt OGCP-9000
Remote control panels

OGCP-9000

Just type in the value you want, and press enter.

OGCP-9000/SW-LM

The Audio Loudness Meter software (OPT-SW-LM)

-ATSC A/85 and ITU BS.1770 compliant
-audio level and LKFS assessment information.

OGCP-9000/CC

Used with 9084 RGB Color Corrector card (offset, gain and gamma) with YCbCr proc controls and frame synchronizer.

End-User Testimonials

- **"While the OGCP-9000 offers ease of use along with convenience, the DashBoard™ app is very empowering.**

- **The status of any aspect of any card is only a mouse click away..."**

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SIGNAL PROCESSING

Cobalt openGear Video Processing Equipment

by Joey Gill

As our industry leaps forward on the technology front, it seems as though more and more broadcast tools are becoming modular. The days of discrete chassis assemblies designed for single duties are all but gone. Although the modular trend is not new, it seems that manufacturers are pushing the feature sets to almost extreme levels. With so many features and options available on each card, managing the function and control of the cards can be an intimidating task. However, with a little planning and proper preparation, the whole process can actually take you to a better place than you ever imagined.

When I was approached about a product review of Cobalt Digital's openGear 8510 Chassis and the accompanying 9000 control panel, it sounded pretty straightforward.

However, it quickly became apparent that something remotely related to broadcasting had to actually be happening for the story to make any sense. After all, an empty chassis (no matter how sexy) just won't hold a reader's interest. It was then decided that we should add a few cards to the mix. What better products to test drive in a modern HD broadcast facility than an audio embedder/de-embedder w/delay

Cobalt Digital openGear processing modules card frame

series signal processing cards. The frame features all-aluminum construction, along with front mounted cooling fans for optimum air flow. Dual hot-swappable power supplies are an option, and power cards are locked in place by cord retainers. Two independent looping reference inputs feed all module slots, and there's a power switch accessible from the front of the unit. Asterned, the 8510C was equipped with the optional Ethernet frame controller card for remote setup, monitoring and control using either the RCP or Dashboard software. The front of the unit contains LED alarms for errors and fan failure.

For remote control of the 9000 series sig proc cards, the 2 RU unit OGCP-9000 offers ease and simplicity. The OGCP-9000 has a simple keypad layout on its front left side, along with USB connectivity and eight active displays (on two screens) with eight scroll/action knobs associated with each LCD screen located on the mid-right section of the front panel. The rear of the OGCP contains an additional port, as well as Ethernet and DB-9 connectors. There's also a plethora of GPI/GPO connectors. Connectivity with the 8310 frame is achieved via an optimized high-

FAST FACTS

Application
HD-SDI video processing, audio Processing

Key Features
Remote control panel, Dashboard, multifunction, compact, HD-SD/SD

Price
MSRP as tested: 8310-C, $1,100; OGCP-9000, $2,695; 9084, $4,295; 9081, $4,895; 9608, $2,295.

Contact
Cobalt Digital
800-669-1691
www.cobaltdigital.com

Joey Gill
For TV Technology
DECEMBER 23, 2009

Dual functionality during upgrade

End-User Testimonials

- "One of the more recent challenges we faced was a fast-track program for upgrading two studios to high-definition operations in connection with the production of the **Colbert Report** and **the Daily Show**. Both shows had to stay in production in SD during the HD upgrade.
  - [...] We have a large plant and there's always a lot of frame syncing, color correcting, embedding and de-embedding being accomplished in connection with the dozens of signals moving throughout the operation. By using **openGear™** products with the **DashBoard™** control and monitoring software, along with the Cobalt **OGCP-9000** remote control panels, we have achieved one of the holy grails of system design--all video and audio processing under a common control scheme."

TV TECHNOLOGY

USER REPORT

NEP Taps Cobalt Digital for HD Shows

by George Hoover
Chief Technology Officer
NEP Broadcasting

NEW YORK

NEP Studios is a premier teleproduction and post production service provider in New York City and is known for its premiere talent and technical expertise. We are responsible for production of some of the hottest shows on the air and have to be ready to handle anything a producer might need.

One of the more recent challenges we faced was a fast track program for upgrading two studios to high-definition operations in connection with the production of the Colbert Report and the Daily Show. Both shows had to stay in production in SD during the HD upgrade.

STAYING ON THE AIR WHILE DOING A MAJOR MAKEOVER

This was to be a very extensive multi-stage rework of the facilities in order to transition us to HD, including studios, control rooms, editing, graphics and audio.

Based on previous experience with Cobalt Digital in the remote environment, we chose a range of their products to handle up and down video conversion, and audio format conversion, as well as embedding de-embedding and color correction.

As equipment was swapped out during the weekends and dark periods, the Cobalt gear needed to operate automatically in HD or SD depending on the signal present.

During the transition, shows are produced in SD, but HD rehearsals and HD pre-production is taking place. We're using Cobalt 8822 downconverters that accommodate HD/SD-SDI input, embedded audio, de-frame syncing, and provide timecode and closed captioning support for the highest quality conversion possible when we need a standard-definition feed from our new HD operation.

To ensure that all on-set monitors are properly color matched, the video operators use the Cobalt 9084 color correctors, along with a Cobalt OGCP-9000/CC remote control panel, to allow them to quickly move through setup on each on-set monitor. The system gives them complete control of RGB values, along with lift, gain, gamma settings and clip settings.

CONTROL FROM ANYWHERE

We have a large plant and there's always a lot of frame syncing, color correcting, embedding and de-embedding being accomplished in connection with the dozens of signals moving throughout the operation. By using Cobalt's openGear products with the DashBoard control and monitoring software, along with the Cobalt OGCP-9000 remote control panels, we have achieved one of the holy grails of system design—all video and audio processing under a common control scheme.

The OGCP-9000 range of control panels can control and monitor all Cobalt 9000-series Compact cards for the openGear format with the OGCP-9020/CC optimized for the 9084 color corrector card.

With multiple OGCP-9000 control panels in use, our operators have real-time access to any of the cards they need to control. In the videotape room, operators have access to the 9023 A to D cards (providing input processing along with analog to digital video conversion and audio embedding) and the 8322 HD/SD de-embedder cards. The control panel installed in the engineering room gives access to all cards. As a bonus, DashBoard control software provides them with the ability to monitor and control all cards remotely from a PC, Mac, or Linux desktop.

Cobalt Digital products helped us make the near impossible happen, and due to their continuing reliability, are one less thing to worry about.

George Hoover is chief technology officer for NEP Broadcasting. He may be contacted at georgeh@nepcpn.com.

For additional information, contact Cobalt Digital at 217-344-1243 or visit www.cobalt-digital.com

George Hoover, NEP

Loudness control

- Allowing broadcasters to manage loudness,
  - providing their viewers with the highest level of audio quality, and avoiding the annoying extremes of loudness currently experienced.
  - The combination of Cobalt's 9000 series cards for openGear™ and the Linear Acoustic AeroMAX™ technology provides a high quality, price competitive solution in rack frame format.
  - Options available are processing on six to eight channels comprising 5.1, two channels comprising a stereo sound field, and a 'Special' quad 2.0 version providing four stereo or mono programs.

COBALT

+

LINEAR ACOUSTIC

=

ALC

Color Corrector 9084

- The 9084 is a full RGB Corrector (offset, gain and gamma) with YCbCr proc controls and frame synchronizer. It can process HD/SD SDI signals in all formats. Color correction can be applied to entire frame or a sub region, and there is on-card storage of 16 presets.
  - First units are to be shipped to NEP Super Shooters for use in their television production trucks, providing color correction for the POV (point of view) cameras.

COBALT

NEP

Simple Selector panels

- MRP-8120

Used with Ross DSS-8224 Multi-Definition Dual 2x1 or 4x2 HD / SD SDI Switch

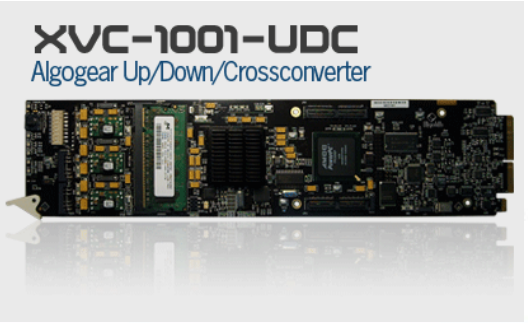
A convenient and economical solution for systems requiring switching of up to 4 input video sources, SDI and / or HD SDI, to 1 or 2 outputs.

Reprogrammable modular cards

- "One Price, One Platform, More Choices"
  - The program lowers the cost of all Algogear applications to one simple price of $5995.00 USD.
  - It gives the customer the power to switch the Algogear hardware to any of the 12+ supported applications *at no extra charge!*
- The quickly evolving Algogear series now includes
  - Up-Down-Cross Conversion
  - Video and Profanity Delay
  - Frame Synchronization
  - Quad Split (New)
  - Color Temperature Conversion (New)
  - Signal Conformity and Comparison (New)

Algolith

Advantages of FPGA-based image processing versus ASIC implementations

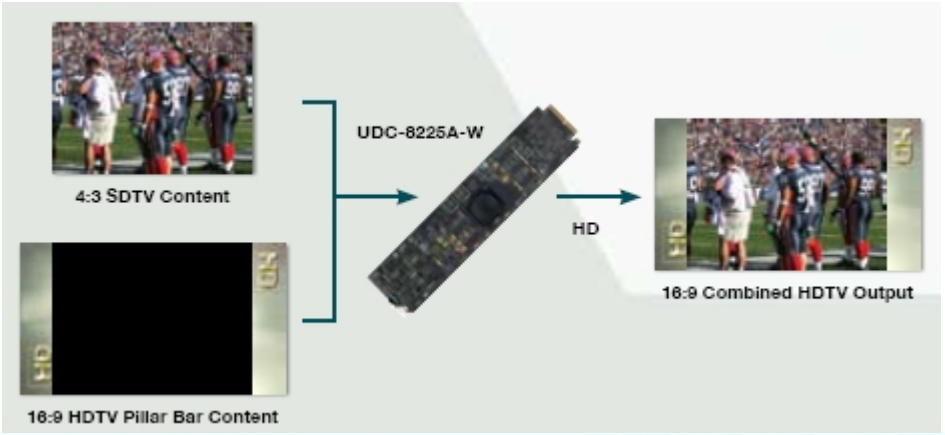


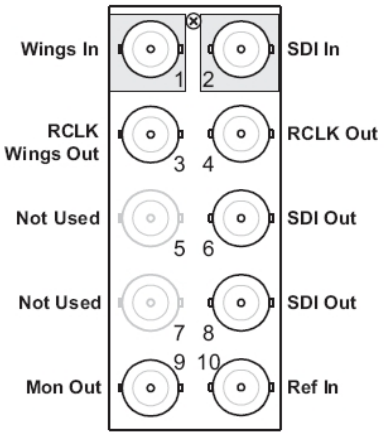
Choices and a selection of Award Winning Products

UDC-8225A

MD-SDI Universal Up / Down / Cross Format Converter

- **Features**
  - Converts between all common standard-definition (270Mb/s) and high-definition (1.485Gb/s) formats
    - Automatically detects the incoming video format, and converts to an assigned output format
  - Advanced video processing algorithms maintain the highest quality cross-conversion
  - Flexible aspect ratio control
  - Built-in frame synchronizer times output to a local or frame-wide reference
  - Performs Closed Captioning pass through and conversion
  - NTSC / PAL monitoring output with Heads-Up Display menu system
  - 1 reclocked and 2 processed SDI outputs





9061

Up/Down/Cross converter

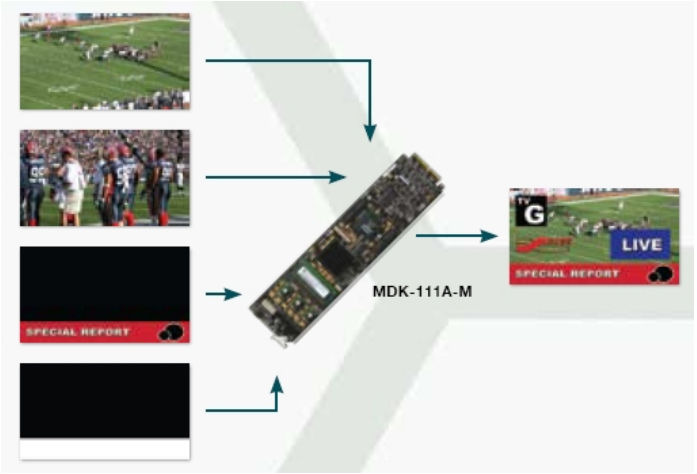
- The 9061 card is an up/down/cross converter with analog/SDI input, audio embedding/disembedding, frame sync, with timecode and closed captioning support.
- The 9061features:
  - 12-bit conversion
  - and provides AFD functions,
  - along with standard video signal processing controls, such as
    - white level,
    - black level,
    - color gain and phase,
    - audio routing, and
    - frame sync.
- Other features include
  - 3:2 pulldown and reverse 3:2 conversions,
  - safe title and center cross overlays.
- It offers 24-bit analog audio/AES conversion, audio channel mapping, audio offset adjustment for lip-sync alignment and audio level control.

COBALT

MDK-111A-M

HD / SD Mixer / Keyer with Internal Logo Insertion

- *Four keyers with simultaneous background mixing, external keying, three internal animated logo keys, fade to black – with preview.*
  - **Applications**
    - Animated Channel Branding Inserter
    - Rating Inserter
    - Mini-Master Control Switcher
    - Downstream Keyer / Branding Engine
    - Master Control Bypass Mixer
    - Branding / Sponsorship keyer for Stadiums



* **The MDK-111A-K** offers 4 SDI inputs/outputs with one independent static/animation keyer for each channel.

9035

Analog to Digital Converter

- The 9035 is a HD/SD analog-to-digital converter with
  - 12-bit conversion bit depth that provides an HD/SD-SDI input, analog and digital audio inputs, audio embedding/de-embedding, frame sync, and user audio/video level controls.
  - The 9035 includes full proc control, full audio routing and frame sync controls, and AFD code insertion--all with user memory.
  - Frame sync can be used to delay video or audio-video offset for lip-sync alignment.
    - Option: 9035-DEC, offering Dolby® Digital/E Decoding

COBALT

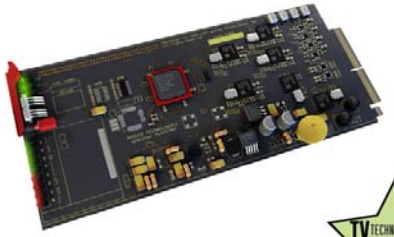
Wohler Open Gear Captions

Multi-Purpose Closed Caption Inserter, Decoder, and Transcoder Card

- HDCC-200 Dual-channel HD/SD-SDI data insertion and extraction.
  - Provides a variety of useful captioning tools.
    - One card can be configured and reconfigured as needed to convert captioning from SD to HD formats and back, insert two generated or stored captioning data streams into two programs, or extract captioning data from two SDI signals.
- HDCC-200A features duplicate video outputs per channel configurable to render captioning "burnt in" for end-point preview on any external display.
- The card automatically formats the data for insertion into the HD-VANC space as set out in, CEA-608B, CEA-708B ITU-TH.222 and the Australian Free TV OP47 specifications.

Wohler

Europa Australia Pty Ltd
Providing Affordable Custom Broadcast Solutions.



HDCC-200A

TV Technology Europe STAR 2009 Superior Technology Award Recipient

Special purpose cards

Examples

More and more broadcast tools are becoming modular.

- The days of discrete chassis assemblies designed for single duties are all but gone.
  - Although the modular trend is not new, it seems that manufacturers are pushing the feature sets to almost extreme levels.
  - Saves in RU real estate


TV TECHNOLOGY

SIGNAL PROCESSING

Cobalt openGear Video Processing Equipment

by Joey Gill

FAST FACTS

FEATURES

by Joey Gill

Joey Gill is chief engineer at television station WPSD in Paducah, Ky.

8-VSB & ASI Receiver/Decoder

- **AG-3801 8-VSB/ASI to ASI/SDI Receiver/Decoder Card**
  - Receive ATSC broadcast signals and output those signals via ASI and SD/HD-SDI.
- **AG-3802 ASI to ASI/SDI Receiver/Decoder Card**
  - Enables providers to receive an ASI signal and output that signal via ASI and SD/HD-SDI.
- **AG-3803 8-VSB/ASI to ASI/Composite Receiver / Decoder Card**
  - Enables providers to receive ATSC broadcast signals and output those signals via ASI and Composite Video.

SENCORE

- **ASI-310 Converter**
  - DVB-ASI to SMPTE 310 Converter
- **CMI-100 Constant Metadata Inserter**
  - The CMI-100 automatically and repetitively inserts audio metadata, active format descriptors (AFD), and other metadata into the VANC of HD and SD signals
- **GPI-100 Remote GPI VANC Transmission**
  - enables GPIO triggers to be carried in the Vertical Ancillary VANC) data area of an SDI (SMPTE 259) or HD-SDI (SMPTE 292) video signal, in accordance with SMPTE 291 and other related standards
- **TSD-100 Transport Stream Detector**
  - analyzes an MPEG-2 Transport Stream to identify occurrences of selected components. For example, when SCTE-35 triggers are carried in operator specified PIDs, the TSD-100 can simply use the presence of these PIDs or use the splice commands contained within, to assert a GPIO output to alert an operator or downstream equipment to the occurrence of the SCTE-35 trigger.
- **TSM-100 Transport Stream Monitor**
  - analyzes an MPEG-2 Transport Stream for compliance with standards and recommended practices, including ATSC A/78, TR 101 290, and SCTE-142.
- **VAC-100 VANC Inserter**
  - provides a cost-effective means of authoring and inserting the most common VANC data into a SMPTE 259M or SMPTE 292M signal.
- **VRC-100 VANC Receiver**
  - provides a simple and highly configurable way of monitoring the VANC data in a SMPTE 292M signal. Information about the VANC content is displayed over the video that contains it.

norpak

Delay for live event French translation

- VLD-1002-MD was also used to delay audio for TQS *Extreme Fighting* program.
  - The VLD was used to delay the audio and video by 10 seconds to allow live audio translation to French, to accommodate their French language viewers.

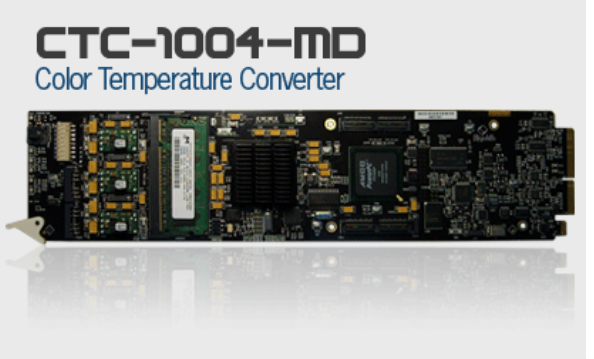
Profanity Delay System PDS-1001-MD

- **Great for eliminating “wardrobe” malfunctions and unexpected obscenities before content goes on – air, with simple push of a button.**
  - Multi – definition Profanity Delay
  - Up to 10 seconds of delay in HD
  - Adjustable reaction time delay
  - Clean audio and video transition with programmable user “pre – roll” trigger reaction
  - Video blurring or safe input
  - Audio switching to embedded safe feed or fade to mute
  - Programmable GPI
  - Audio / metadata support
  - Programmable audio delay

Algolith

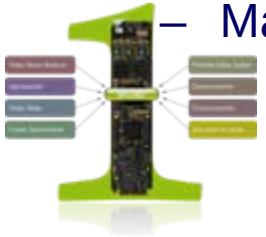
Algogear Color Temperature Converter

- **Most cost effective way to control the color temperature of "on-set" TV screens and computer monitors**
  - Converts TV/monitor images from a specific color temperature to another
  - Provides true to life colors by correcting images for a wide range of color temperatures
  - High density solution with 4 separate channels/card – significant cost savings
  - Allows user to control and calibrate the output of the TV
    - Input control: color temperature of original image
    - Output: desired color temperature
  - Users can store four different settings and assign names to those settings so they can be recalled by user
  - Split screens
  - Proc-Amp allows for further user control of hue and saturation
  - Embedded audio (passes audio on all 16 channels)
  - Field upgradable and future-proof at no additional cost



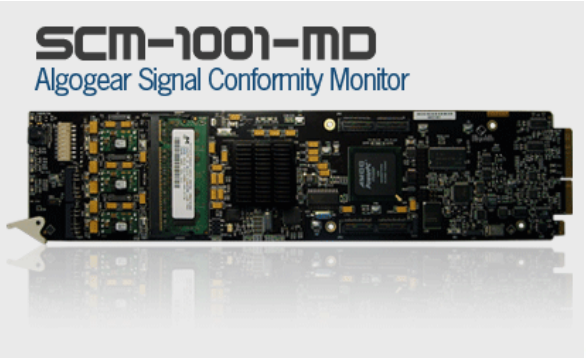
Algogear Signal Conformity Monitor

- **An indispensible tool for quick visual display of image degradation**
  - Detection of image discrepancies following transport and/or processes
  - Quick visual representation of image discrepancies
  - Built-in Video Delay to time images for precise comparison (up to 10 seconds delay)
  - Normal split mode or difference on left (or right)
  - Gain of 16 when in diff mode
  - Test pattern generator on channel 1A and 2A (75% or 100% color bar)
  - Mirror left, mirror right, wipe mode
  - Marker for separate images



IBC2009

Algolith



Algogear Video Quad Split

- **Cost-effective video quad split with flexible metadata views**
  - 4 inputs, 4 outputs
  - Supports Under Monitor Display text
  - Time Code Overlay Support
  - Closed Captioning decoding and overlay on screen
  - Audio and metadata passthrough
  - Quad split view, Dual split view (side by side or PIP)
  - 4x4 matrix switching on output BNCs
  - Supports any progressive or interlaced video formats up to 1080i @ 74.25MHz

IBC2009

Algolith

MVN-MX260 Media Gateway

(MVN-MX260/BAS)

- Enabling transmission of real-time video over IP networks.
  - Provides operators with a powerful, cost effective solution for processing or format converting DVB transport streams.

- **Output a single transport stream over any ASI or IP output port.**
  - The flexible design allows up to an additional 5 transports streams to be processed on each module.
    - 1x ASI to IP encapsulation or IP to ASI de-encapsulation
    - 1x Gigabit Ethernet interface
    - Management and control via openGear chassis
    - IP transmission using unicast or multicast
    - In-band or out-of-band control*
    - IEEE 802.3q VLAN tagging
    - Multicast IGMP v1,v2 and v3 support

MAGENTA video networks

MVN-MX260 Media Gateway

(MVN-MX260/BAS)

- **Licensable Options**
  - Additional Transport Stream output **(MVN-MX260/TS)**
  - Enables second GbE port **(MVN-MX260/GBE)**
  - FEC per output transport stream **(MVN-MX260/FEC)***
  - PID or service level filtering per output stream **(MVN-MX260/FILTER)***
  - Multiplexing per output transport stream **(MVN-MX260/MUX)***
  - SPTS splitting for 64 services **(MVN-MX260/SPLIT)***

MAGENTA video networks

openGear @ NABSHOW Where Content Comes to Life™

Sneak Preview

New partner @ NAB 2010

- eeg — The Captioning Solutions Company

Booth SL 9120

Booth #N3807

- The platform now offers a 21 slot frame with free Ethernet for setup and configuration.
  - An optional high end controller is available for more complex networking requirements that include **DataSafeTM**, which auto re-configures cards when they are hot-swapped in the frame.
  - **DashBoard 3.0** for Windows, MAC and Linux offers new features to simplify the setup and maintenance of larger systems with multiple card upgrades.

openGear

NABSHOW Where Content Comes to Life™

www.incospec.com

INCOSPEC From your content to its distribution, we deliver solutions...

Booth #N3807

- **Ross Video will offer an expanded range of 3Gb/s products.**
  - **Optical to electrical and electrical to optical** with ultra high density offering up to 40 conversions in 2RU,
  - **Full spectrum optical splitters** (1x2, 1x4 and 1x8),
  - **Optical CWDM MUX / DMX** configurable in groups (4, 8, 12 and 16) allowing up to 16 full bandwidth 3Gb/s SDI signals onto a single fiber, and
  - **Optical DA / regenerator** that re-launches the optical output at -7db extending system link budgets.

NEW!

NABSHOW Where Content Comes to Life™

Booth #N3807

- **Ross Video Pre-NAB**

  - **Clean Quiet Switch**
    - Software driver for external router to provide a seamless router switch

  - **Web Configuration Tool**
    - Pre-configure Frame for design requirements

  - **3G capable 16 channel audio MUX/DMX**
    - With comprehensive proc functions to correct issues at ingest offering invert, sum, swap, shuffle, gain, and sample rate conversion all available with analog, digital and optical I/O.

NEW!

NABSHOW Where Content Comes to Life

Booth #N3807

- **Ross Video Pre-NAB**

  - the **QSP-8229 Quad Split Processor** offering looping inputs, quadrant bordering, UMD and tally support for monitoring up to 4 signals on a single display;

  - the **VEA-8707A**, an **Analog Equalizing and Clamping DA** with looping input

  - **Master Sync Pulse Generator SPG-8260** which can free-run or be locked to house reference and is equipped with 4 pairs of outputs configurable as Composite Black, Tri-Level, Word Clock or AES all with independent timing.

NEW!

NABSHOW Where Content Comes to Life™

Sneak Preview Cobalt

Booth #N2830

- Fusion-3G™ 9900 Series UDX **Up/Down/Cross Converter**
  - The Cobalt Fusion-3G™ UDX conversion card provides world class conversions, supporting 3G/HD/SD SDI, fiber, and analog video inputs as well as AES and analog audio inputs.
- Fusion-3G™ 9900 Series **LINK3G**
  - The Cobalt Fusion-3G™ LINK3G provides high-density conversion between dual link (SMPTE 372M) to single link (SMPTE 425M Level B), in the openGear™ frame.

Sneak Preview Cobalt

Booth #N2830

- **Fusion-3G™ 9900 Series SBS3D**
  - The Cobalt Fusion-3G™ SBS3D combines dual discrete stereoscopic SDI feeds into a single SDI signal, in either a side-by-side or checkerboard pattern. Fusion-3G™ 9900 Series LINK3G
- **Loudness Processing**
  - Featuring Linear Acoustic AEROMAX™ technology, Cobalt's complete audio solution offers both 5.1-channel and stereo loudness processors using inputs from any source received by the card, or any mixing setting produced by the card.
- **Loudness Metering**
  - Cobalt's Audio Loudness Meter software provides a flexible, comprehensive solution for ingest or on-air loudness metering and assessment.

NEW!

NABSHOW Where Content Comes to Life™

www.incospec.com

Credits

- Special thanks
  - **Eric Goodmurphy**, Product Manager Ross Video
  - **Ian Caldwell**, Ward-Beck
  - **Chris Shaw**, VP of Sales, Cobalt Digital

Merci

Download from our web site soon

www.incospec.com/downloads

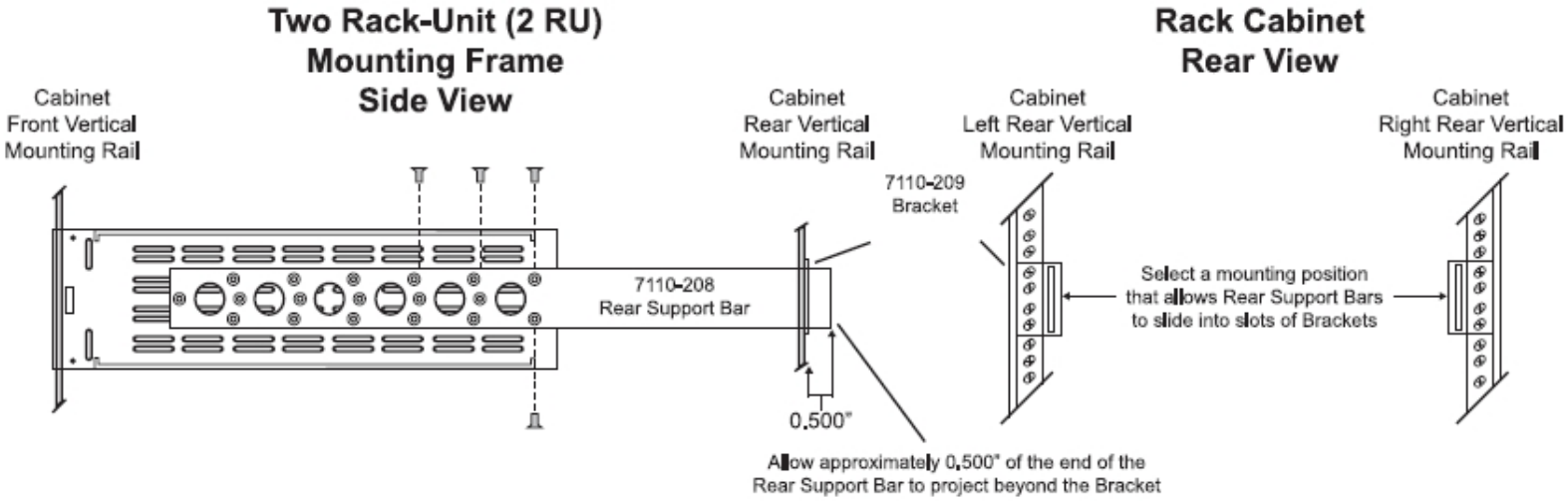
Hidden slides

More details on other products

Additional Frame Accessories
Rear frame support bracket

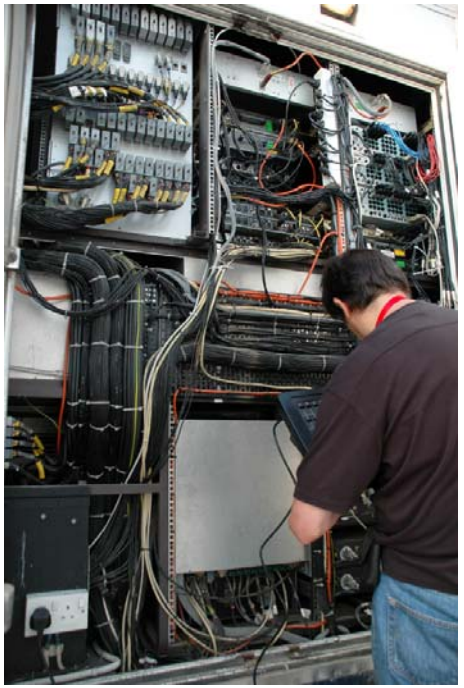
Rear Support Bars and Brackets

Under normal conditions, mounting the frame to the front of the rack with four rack screws should be sufficient to carry the load, including the weight of accompanying cables. The optional **Rear Support Bars and Brackets** (**FSB-8310** or **FSB-8320**) are specifically engineered to compensate for extra load stress associated with certain applications, such as mobile truck installations, to also support the rear of the frame.



Card Retaining Bracket

Additional Frame Accessories



- For mobile installations, the CRB-8310 Card Retaining Bracket can be added.
  - This bracket holds all modules firmly in place, eliminating module slippage during frame transport.

OGCP-9000 remote control panel

- Communication with the openGear™ frame occurs
  - over an optimized high-speed openGear™ Ethernet control protocol,
    - allowing lightning-fast access.
  - The OGCP-9000 offers instantaneous, real-time adjustments,
    - so operators can manipulate on-air signals with confidence and precision.

Just type in the value
you want, and press enter.

OGCP-9000 remote control panel

Features

Real time adjustments, excellent for on-air manipulation	Simultaneous display and update of 8 parameters
No deep submenus, all parameters can be accessed quickly	Seamless integration with DashBoard™ control software
10/100 Mbps Ethernet TCP/IP connection	Optimized for bright and low light environments
Completely configurable with password protected web interface	Save and restore panel configuration with web interface
Rugged 2U rack mounted chassis	Five year warranty

The OGCP-9000 has a simple keypad layout on its front left side, along with USB connectivity, and eight active displays (on two screens) with eight scroll/action knobs associated with each LCD screen located on the mid-right section of the front panel.

Open Minds brings great complicity

- The 9305 card is an embedded audio delay processor, and includes an optional audio up-mixer.
  - Features include HD/SD-SDI input deembedding of all audio data,
  - independent delay of each channel, and
  - re-embedding of processed audio data.

  - The optional upmixer software features Linear Acoustic technology to provide a stereo signal that's representative of the 5.1 surround signal.

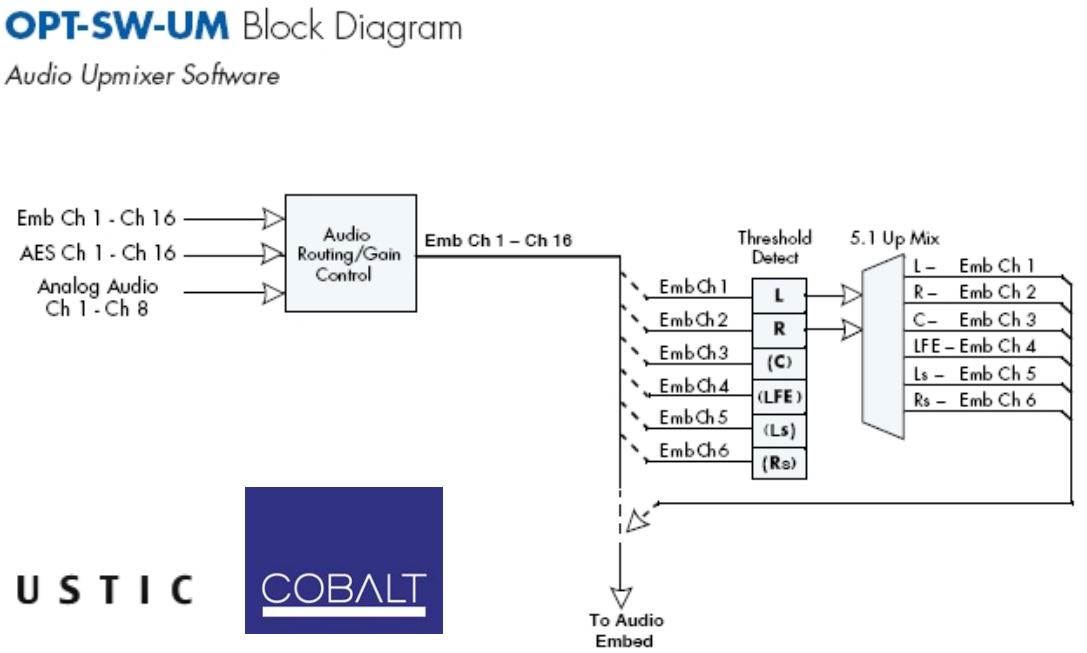
LINEAR ACOUSTIC

COBALT

Audio Upmixer Software

OPT-SW-UM

- The 5.1 upmixer can always generate a 5.1 feed from a stereo pair, or be set to look at signal levels on designated channels. Where valid 5.1 audio is present, the 5.1 upmixer allows the channels to pass unaffected. Where 5.1 audio is not present, the 5.1 upmixer then automatically generates and routes the 5.1 audio on the designated channels.



LINEAR ACOUSTIC

COBALT

OPT-SW-LM Audio Loudness Meter Software

- The Audio Loudness Meter software (OPT-SW-LM) provides a flexible, comprehensive solution for ingest or on-air loudness metering and assessment.
  - With true peak level detection, error tracking and logging, and intuitive interface with touch screen control, Cobalt's Audio Loudness Meter ensures thorough audio level and LKFS assessment information.
  - The option is ATSC A/85 and ITU BS.1770 compliant.

OPT-SW-LM Audio Loudness Meter Software

Features

ATSC A/85 and ITU BS.1770 compliant	True peak level detection
Comprehensive error tracking and logging	Intuitive user interface with touch screen control
LKFS error analysis suitable for ingest and post production environments	Display shows full LKFS and confidence monitoring for up to eight input channels
Flexible monitoring modes include configurable dBFS bar graph meters, absolute/deviation LKFS display modes, and LKFS error thresholds	Detailed web-browser session log reports with CSV raw data output available
10/100 Mbps Ethernet TCP/IP connection	Accommodates any combination of audio sources handled by host card: embedded, AES, analog, or decoded Dolby E or AC-3
Automated control via OGCP-9000 GPI ports	Five year warranty

COBALT

Color corrector & Dedicated Panel

- The 9084 card is an HD/SD-SDI RGB color corrector with YCbCr video proc and frame sync controls.
  - The RGB processing provides full offset, gain and gamma adjustments, and the YCbCr proc controls provide lift, gain, saturation, phase, white clip (hard and soft), black clip and color saturation clip. A full-featured frame sync provides compatible reference matching with only three lines of delay, and it can be bypassed for operation in synchronous environments.

Rotary controls allow direct access to gain, gamma and black for each of the RGB channels, in addition to YCbCr proc controls.

COBALT

AG-3801

8-VSB/ASI to ASI/SDI Receiver/Decoder Card

- **Receive ATSC broadcast signals and output those signals via ASI and SD/HD-SDI.**
  - **Switchable SD/HD-SDI Outputs**
    - Transition from SD to HD sources without changing hardware.
  - **Manual or AFD Triggered Downconversion**
    - Fix the output format to the preferred center-cut, letterbox, or anamorphic modes. Or, switch formats on the fly with support for the Active Format Descriptor (AFD).
  - **Extensive Ancillary Data Support**
    - Supports pass through for extensive ancillary data including: 608/708 closed caption, XDS/V-CHIP, AMOL, and Gemstar.
  - **ASI Output**
    - Simultaneous ASI output to facilitate transport stream analysis or as an input directly to a multiplexer.

SENCORE

AG-3802

ASI to ASI/SDI Receiver/Decoder Card

- **Enables providers to receive an ASI signal and output that signal via ASI and SD/HD-SDI.**
- **Multi-Format SD/HD MPEG2 & H.264 Decoder**
  - Future proof off-air turn around applications with multi-format support on one card.
- **Switchable SD/HD-SDI Outputs**
  - Transition from SD to HD sources without changing hardware.
- **Manual or AFD Triggered Downconversion**
  - Fix the output format to the preferred center-cut, letterbox, or anamorphic modes. Or, switch formats on the fly with support for the Active Format Descriptor (AFD).
- **Extensive Ancillary Data Support**
  - Supports pass through for extensive ancillary data including: 608/708 closed caption, XDS/V-CHIP, AMOL, and Gemstar.
- **ASI Output**
  - Simultaneous ASI output to facilitate transport stream analysis or as an input directly to a stat-mux.

SENCORE

AG-3803

8-VSB/ASI to ASI/Composite Receiver / Decoder Card

- **Enables providers to receive ATSC broadcast signals and output those signals via ASI and Composite Video.**
- **Multi-Format SD/HD MPEG2 & H.264 Decoder**
  - Future proof off-air turn around applications with multi-format support on one card.
- **Composite Video Output**
  - Output Composite Video with the re-created NTSC VANC data (closed captions, XDS [from 608 data or from PSIP tables] and AMOL/Gemstar [SCTE 127]).
- **Manual or AFD Triggered Downconversion**
  - Fix the output format to the preferred center-cut, letterbox, or anamorphic modes. Or, switch formats on the fly with support for the Active Format Descriptor (AFD).
- **ASI Input**
  - Automatic redundency switching from 8-VSB to ASI from off-air to fiber fed back-up.
- **ASI Output**
  - Simultaneous ASI output to facilitate transport stream analysis or as an input directly to a stat-mux.

SENCORE